VISION 21
GOVERNOR'S TRANSPORTATION TASK FORCE

Newsletter

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What Are Arizona's Long Term Transportation Needs?

One of the primary assignments of the Task Force is to identify critical, long-range transportation needs in both rural and urban areas of this state. In addition, the Task Force is charged with developing preliminary estimates of the long-term (minimum of 20 years) cost of implementing a comprehensive, multi-modal, long-range transportation system plan.

It is significant to note that this is the first time Arizona has attempted to systematically quantify statewide transportation needs in a single database.

Early in its deliberations, the Task Force realized the importance of developing a standardized method of assessing statewide transportation needs. Discussions with the cities, counties, Councils of Governments'(COG's), Metropolitan Planning Organizations (MPO's), the state, and tribal governments revealed there existed significant variations in the procedures and criteria used in developing local, regional and state transportation plans.

To assist in developing a standardized analysis, the Task Force contracted with an internationally recognized transportation consultant, Booz-Allen & Hamilton, Inc.[Booz-Allen]. Booz-Allen, in affiliation with two subconsultants, S.R. Beard & Associates and Mosaic Analytical Planning, was given two primary assignments: develop a systematic database for all Arizona's transportation needs over the next 20 years, and use this database to develop hypothetical alternative transportation plans for discussion by the Task Force.

Data Collection

The first basic assignment was to develop a database of all transportation plans and studies statewide along with project costs. The Needs Database is now 99% complete and captures projects for all modal systems in Arizona over the next 20 years, including highways, railways, aviation, bicycle/pedestrian and transit. It is significant to note that this is the first time that Arizona has attempted to systematically quantify statewide transportation needs in a single data base.

In Upcoming Issues

Arizona's Transportation Alternatives—Recommendations from the Task Force.

Task Force Public Meeting Schedule.

The data collection and verification procedures for this complex task involved:

In Phase I, The consultants requested projects and plans from the state, all MPO's, COG's, tribal governments, cities, counties, and towns. The consultants then submitted these listings for review by Arizona Department of Transportation's (ADOT) District Engineers and also submitted the listings for review by ADOT's Multimodal Planning staff. The first round review was completed in August, 2000. The database was then updated to add missing information, correct errors and eliminate duplicates.

Then in Phase II, the consultants submitted the database to the state's MPO's and COG's for review as well to tribal governments and the Bureau of Indian Affairs. Again, necessary changes were made to the database. This second round review was completed in October, 2000.

Following these detailed validations, the projects in the database were classified into one of three categories:

Preservation Expenditures

Purpose: Maintain the existing transportation system and preserve the system in a state of good repair.
Typical Projects: Highway roadway and roadside maintenance, bridge maintenance and replacement, transit bus replacements.

Operations Expenditures

Purpose: Operate the system safely and cost effectively; improve operations.
Typical Projects: Urban freeway on-ramp metering devices, commercial vehicle operations systems, improvement of railroad grade crossings, snow removal.

Expansion Expenditures

Purpose: Expand the system, either through physical additions or capacity improvements.
Typical Projects: Transit fleet expansion (capital acquisition), lane additions, runway / taxiway construction.

Transportation Needs at a Glance

The database contains multiple alternative approaches for future transportation needs. For example, a highway and a separate mass transit system may have been identified and included to meet future transportation needs along a single alignment. As of November 2000, the needs analysis shows the following statewide needs:

- Currently 10,706 projects in the database
- 97.7% of the projects have costs identified
- Breakdown of costs by project type:
  - Expansion - 69%
  - Preservation - 9%
  - Operations - 5%
  - Combinations - 3% (i.e. expansion & preservation)
  - Unassigned -14%

Cost Normalization

To provide a standardized analysis of all projects in the database, Booz-Allen then employed cost normalization methodology. The cost normalization process involved the following main steps:

- Projects with the greatest total costs were individually reviewed by comparing to similar projects nationwide.
  - Individual projects were reviewed by determining if the project costs were reasonable based on comparisons with current typical costs from external data sources.
  - Close to 150 projects were selected for this individual project analysis.
- Separately, unit costs were analyzed within specific categories in comparison to all other similar projects in the database.
  - The unit cost analysis serves as an objective review of cost information provided by hundreds of projects from throughout Arizona.
  - Examples of unit costs include the cost to construct one lane-mile of rural interstate, and the cost to preserve one lane-mile of urban local road.
  - Step 1 in this process was to define the primary unit cost categories of interest. For certain cost categories, a distinction between urban and rural projects was drawn. Projects in Maricopa and Pima counties were considered to be urban, while projects in all other counties were considered to be rural.
  - Step 2 involved grouping the individual projects from the database into the primary unit cost categories based on project descriptions. A number of secondary categories were also defined, including safety/shoulder improvements and traffic signalization.
  - Cost estimates were determined to be high if they were significantly greater than current typical costs or if they were considerably higher than comparable projects.
  - Costs were all converted to Year 2000 dollars.
  - Cost estimates were determined to be low if the opposite was true.
- The project team calculated the mean and standard deviation for each unit cost category.
  - For each category of projects, the key items of interest are the average (mean) unit cost and its standard deviation. The mean unit cost is also called the expected unit cost, which was used to calculate an expected total cost.

Two Plans Contained Approximately 54% of the Total Big Ticket Project Costs

- Two plans in particular had both a high number of the "big ticket" projects and a large share of total "big ticket" project costs. These were:
  - 1999 MAG Long Range Transportation Plan (24 projects, combined cost of $11.18 billion or 30.1 percent of the total "big ticket" costs reviewed. This does not include the two projects of $6.2 and $3.3 billion respectively that were removed due to duplication).
  - 1998-2020 PAG Metropolitan Transportation Plan (14 projects, combined cost of $8.82 billion or 23.8 percent of the "big ticket" costs reviewed).
- Other documents with a large share of big ticket project costs were the Navajo Nation Long Range Comprehensive Transportation Plan, the I-40 Multimodal Corridor Study, the Phoenix-Flagstaff-Page (I-17/US 89) Corridor Profile, and the US 93 Multi-Modal Corridor Profile.
- The big ticket projects called for corridor improvements on long stretches of roadway throughout the state: 45 of the 99 projects were partially or fully contained within Maricopa County; 23 had a portion in Pima County, 14 in Mohave, 11 in Coconino, 10 in Navajo, 8 in Yavapai, 5 in Apache, 3 in Santa Cruz, 2 in Pinal, 1 in Yuma, and 1 in Gila.

The database development and cost normalization work is almost complete. The cost normalization methodology will enable the consultants to statistically estimate costs on those projects with incomplete project cost information.

When completed, this complex task will enable the Task Force to ensure that in comparing various plans and projects that there is a standardized uniformity in costs per unit. Maintenance of this database will provide a tool for future transportation planning in Arizona.

Next Critical Phase of the Project

Booz-Allen's second task is to assist in developing hypothetical transportation plans for discussion by the Task Force. The hypothetical plans will be based on the following assumptions:

- The hypothetical plans reflect statewide priorities (for example, maintaining the system in a state of good repair, increasing safety, or stimulating economic growth).
- The hypothetical plans address future Arizona transportation needs.

- The hypothetical plans are not the sum of all projects in the database:
  - Many of the projects in the database are alternatives (e.g., I-10 corridor mobility improvement can involve highway, transit, conventional and high-speed rail).
  - Some needs are more pressing than others.
- The hypothetical plans are the first step towards developing the comprehensive plan, which may have components of some, all or none of the hypothetical plans.
- Each hypothetical plans will be composed of four components: Overall Purpose, Key Elements, Sample Projects, and Performance Goals/ Measures.

The four base hypothetical alternatives will include:

- Option A: Preservation of existing system
  - Emphasizes preserving and operation of the system including bringing the system "up to standard".
  - No new capacity.
  - Might include safety overlays and widening of shoulders.
  - Will require supplemental funding.
- Option B: Projected currently programmed costs
  - Assumes continued funding of currently programmed projects and continued operation of the system for the next 20 years.
  - Limited expansion as identified in adopted plans.
- Options C & D: Two different, non-duplicative expansionary plans
  - Includes preservation and operation projects plus expansion.
  - May include capacity and capacity-enhancement strategies as well as multi-modal strategies such as rail and transit.
  - Will require supplemental funding to build on the base plan.

The four hypothetical alternatives are not intended to be "either-or" selections, but to serve as a point of initial discussion for the Task Force in developing the preferred transportation alternative recommendations with a 'vision' for Arizona's transportation system over the next twenty years.

Magnitude of Needs Shortfall

Total transportation needs are still being assessed. It is however anticipated that projected existing revenues will fall short of estimated statewide needs over the next twenty years Additional revenues will be needed to address this shortfall depending on the specific recommended transportation alternatives of the Task Force.

Summary of Committee Discussions

The following is a short summary of issues under detailed discussion by the Task Force committees. Many of these are likely to be included in the Task Force's final recommendations.

In addition to the detailed database development and cost analysis by the consultants, the **Definition of Needs, Resources and Revenues Committee** discussions have focused on:

- Quantification of 20-year, multi-modal, statewide transportation needs.
- Development of a fiscally balanced transportation plan.
- Identification of plan benefits.
- Identification of required existing and supplemental revenues.

The **Planning and Programming Process Committee** discussions have focused on:

- The need for performance based planning process.
- The need for standardization of data collection and reporting.
- The importance of the identification of immediate and obvious results.
- The value of capacity enhancement strategies.
- The importance of enhanced coordination of land use and transportation planning.

The **Governance Committee** discussions have focused on:

- The need for closer coordination of transportation planning, design, construction, operations, maintenance and funding.
- The need for increased accountability of the system to citizens and taxpayers.
- The need for increased emphasis on local and regional priorities.

Immediate Future Activities

The Task Force and its three committees are working to meet an ambitious schedule which provides for the development of transportation alternatives and Task Force recommendations for presentation to the public at meetings in January/ February 2001.

Work remaining to be done in 2000 includes:

- Development and presentation of a final draft transportation database
- Presentation and discussions of revenue alternatives
- Development and presentation of transportation system alternatives
- Further discussion and presentation of committee and Task Force policy recommendations in the areas of Definition of Needs, Resources and Revenues, Planning and Programming Processes, and Governance.

Early in 2001, the Task Force will release its recommended transportation alternatives and seek public comment. The Final Plan and Recommendations will be re-assessed and revised based on public comment. A final report is scheduled to be presented to Governor Hull in April, 2000.

Public Involvement Process

In January / February, the Task Force will take its preliminary recommendations to the public in a series of statewide public open houses. The purpose of the open houses will be to provide the public with information about the recommended transportation alternatives and to provide feedback to the Task Force to guide their discussions prior to finalizing their recommendations for presentation to the Governor. A detailed schedule of the open houses will be distributed in the next few weeks.

Information concerning activities of the Task Force may be obtained from the Vision 21 Task Force Administrative Coordinator, Matt Carpenter, at 206 S. 17th Ave., 310B, Phoenix, AZ 85007, telephone 602.712.7865 or by e-mail at vision21@dot.state.az.us.

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